AMENDMENTS TO CLAIMS

Claim 1 (Currently amended): An optical packet switching method for use at a switching node that receives a first optical packet on a first input path at a first bit-rate and a second optical packet on a second input path at a second bit-rate, the method comprising:

determining a magnitude of a difference between the first bit-rate and the second bit-rate; and

routing the first optical packet to a destination over a first channel wavelength and the second optical packet to said destination over a second channel wavelength if said [[a]] magnitude of a difference between the first bit-rate and the second bit-rate exceeds a bit-rate difference threshold, and

routing the first optical packet and the second optical packet to said destination at separate time slots over a single channel wavelength if said magnitude of a difference between the first bit-rate and the second bit-rate does not exceed said bit-rate difference threshold.

Claim 2 (Original): The method according to claim 1 and wherein each of said first optical packet and said second optical packet comprises one of the following: a fixed-length optical packet; and a variable-length optical packet.

Claim 3 (Canceled)

Claim 4 (Currently amended): The method according to claim 1 [[3]] and wherein said determining comprises:

obtaining a first bit-rate identifier associated with the first optical packet by analyzing a first header associated with the first optical packet;

obtaining a second bit-rate identifier associated with the second optical packet by analyzing a second header associated with the second optical packet; and

comparing said first bit-rate identifier with said second bit-rate identifier to obtain said magnitude of a difference between the first bit-rate and the second bit-rate.

Claim 5 (Original): The method according to claim 4 and wherein each of said first bit-rate identifier and said second bit-rate identifier comprises at least one of the following: a source identifier; a label; and an overhead byte.

Claim 6 (Previously presented): The method according to claim 1 and wherein said bit-rate difference threshold is about zero so that the single channel wavelength carries optical packets that are provided at substantially similar bit rates.

Claim 7 (Original): An optical packet switching method for use at a switching node that receives a first optical packet on a first input path at a first bit-rate and a second optical packet on a second input path at a second bit-rate, the method comprising:

determining a magnitude of a difference between the first bit-rate and the second bit-rate; and

if said magnitude of a difference between the first bit-rate and the second bit-rate exceeds a bit-rate difference threshold:

switching said first optical packet to a destination via a first optical communication switch that is operatively associated with said destination and said second optical packet to said destination via a second optical communication switch that is operatively associated with said destination, and

if said magnitude of a difference between the first bit-rate and the second bit-rate does not exceed the bit-rate difference threshold:

switching said first optical packet and said second optical packet to said destination via a single optical communication switch that is operatively associated with said destination.

Claim 8 (Original): The method according to claim 7 and wherein each of said first optical packet and said second optical packet comprises one of the following: a fixed-length optical packet; and a variable-length optical packet.

Claim 9 (Original): An optical packet switching method for use at a switching node that receives N series of optical packets on N input paths at N bit-rates respectively, where N is an integer greater than two, the method comprising:

arranging said N series of optical packets as K groups of series of optical packets, where K ≤ N and the K groups are characterized in that each group includes series of optical packets having substantially similar bit-rates, and bit-rates of series in each group differ from bit-rates of series in other groups;

allocating K separate channel wavelengths for communicating said K groups of series of optical packets to a destination; and

routing optical packets in each group on a corresponding one of the K separate channel wavelengths to said destination.

Claim 10 (Original): The method according to claim 9 and wherein each optical packet in said N series of optical packets comprises one of the following: a fixed-length optical packet; and a variable-length optical packet.

Claim 11 (Original): The method according to claim 9 and wherein said arranging comprises determining said N bit-rates by obtaining a bit-rate identifier from a header associated with at least one optical packet in each of the N series.

Claims 12 - 25 (Canceled)

Claim 26 (Currently amended): An optical packet switch for switching to an output path associated with a destination a first optical packet received on a first input path at a first bit-rate and a second optical packet received on a second input path at a second bit-rate, the optical packet switch comprising:

a switching/routing control unit operative to determine a magnitude of a difference between the first bit-rate and the second bit-rate; and

at least one switching node operatively controlled by said switching/routing control unit and operative to route the first optical packet to said output path over a first channel wavelength and the second optical packet to said output path over a second channel wavelength if said [[a]] magnitude of a difference between the first bit-rate and the second bit-rate exceeds a bit-rate difference threshold, and to route the first optical packet and the second optical packet to said output path at separate time slots over a single channel wavelength if said magnitude of a difference between the first bit-rate and the second bit-rate does not exceed said bit-rate difference threshold.

Claim 27 (Original): An optical packet switch for switching to a destination a first optical packet received on a first input path at a first bit-rate and a second optical packet received on a second input path at a second bit-rate, the optical packet switch comprising:

a switching/routing control unit operative to determine a magnitude of a difference between the first bit-rate and the second bit-rate; and

at least one switching node operatively controlled by said switching/routing control unit and operative, if said magnitude of a difference between the first bit-rate and the second bit-rate exceeds a bit-rate difference threshold, to switch said first optical packet to said destination via a first optical communication switch that is operatively associated with said destination and said second optical packet to said destination via a second optical communication switch that is operatively associated with said destination, and, if said magnitude of a difference between the first bit-rate and the second bit-rate does not exceed said bit-rate difference threshold, to switch said first optical packet and said second optical packet to said destination via a single optical communication switch that is operatively associated with said destination.

Claim 28 (Original): An optical packet switch for switching to a destination N series of optical packets received on N input paths at N bit-rates respectively, where N is an integer greater than two, the optical packet switch comprising:

a switching/routing control unit operative to arrange said N series of optical packets as K groups of series of optical packets, where $K \leq N$ and the K groups are characterized in that each group includes series of optical packets having substantially similar bit-rates, and bit-rates of series in each group differ from bit-rates of series in other groups, the switching/routing control unit being further operative to allocate K separate channel wavelengths for communicating said K groups of series of optical packets to said destination; and

at least one switching node operatively controlled by said switching/routing control unit and operative to route optical packets in each group on a corresponding one of the K separate channel wavelengths to said destination.

Claims 29 – 33 (Canceled)

Claim 34 (Previously presented): The method according to claim 1 and also comprising receiving each of the first optical packet and the second optical packet at the switching node over the first channel wavelength prior to the routing.

Claim 35 (Previously presented): The method according to claim 1 and also comprising receiving each of the first optical packet and the second optical packet at the switching node over a channel wavelength other than the first channel wavelength and the second channel wavelength prior to the routing.

Claim 36 (Previously presented): The method according to claim 1 and wherein the single channel wavelength comprises one of the following: the first channel wavelength; the second channel wavelength; and a channel wavelength other than the first channel wavelength and the second channel wavelength.

Claim 37 (Previously presented): The method according to claim 1 and wherein the first channel wavelength and the second channel wavelength are comprised in the same wavelength band.

Claim 38 (Previously presented): The method according to claim 1 and wherein each of the first channel wavelength and the second channel wavelength comprises a wavelength in a wavelength band of the order of tens nanometer (nm) around one of the following wavelengths: 780nm; 980nm; 1310nm; 1480nm; 1510nm; 1550nm; and 1620nm.

Claim 39 (Previously presented): The method according to claim 7 and wherein said determining comprises:

obtaining a first bit-rate identifier associated with the first optical packet by analyzing a first header associated with the first optical packet;

obtaining a second bit-rate identifier associated with the second optical packet by analyzing a second header associated with the second optical packet; and

comparing said first bit-rate identifier with said second bit-rate identifier to obtain said magnitude of a difference between the first bit-rate and the second bit-rate.

Claim 40 (Previously presented): The method according to claim 39 and wherein each of said first bit-rate identifier and said second bit-rate identifier comprises at least one of the following: a source identifier; a label; and an overhead byte.

Claim 41 (Previously presented): The optical packet switch according to claim 26 and also comprising a first input port providing the first optical packet to the at least one switching node over the first channel wavelength, and a second input port providing the second optical packet to the at least one switching node over the first channel wavelength.

Claim 42 (Previously presented): The optical packet switch according to claim 26 and also comprising input ports providing the first optical packet and the second optical packet to the at least one switching node over channel wavelengths other than the first channel wavelength and the second channel wavelength.

Claim 43 (Previously presented): The optical packet switch according to claim 26 and wherein the single channel wavelength comprises one of the following: the first channel wavelength; the second channel wavelength; and a channel wavelength other than the first channel wavelength and the second channel wavelength.

Claim 44 (Previously presented): The optical packet switch according to claim 26 and wherein the first channel wavelength and the second channel wavelength are comprised in the same wavelength band.

Claim 45 (Previously presented): The optical packet switch according to claim 26 and wherein each of the first channel wavelength and the second channel wavelength comprises a wavelength in a wavelength band of the order of tens nanometer (nm) around one of the following wavelengths: 780nm; 980nm; 1310nm; 1480nm; 1510nm; 1550nm; and 1620nm.

Claim 46 (Previously presented): The optical packet switch according to claim 26 and operative in one of the following: half-duplex communication; and full duplex communication.

Claim 47 (Previously presented): The optical packet switch according to claim 26 and wherein the at least one switching node comprises a passive switching node.

Claim 48 (Previously presented): The optical packet switch according to claim 47 and also comprising a contention resolution unit operative to resolve bandwidth contention between the first optical packet and the second optical packet.

Claim 49 (Previously presented): The optical packet switch according to claim 26 and wherein the at least one switching node comprises an active switching node.

Claim 50 (Previously presented): The optical packet switch according to claim 49 and wherein the active switching node comprises at least one of the following: a wavelength converter; and a fiber delay line (FDL).

Claim 51 (Previously presented): An optical packet switching method for use at a switching node that receives a first optical packet on a first input path at a first bit-rate and a second optical packet on a second input path at a second bit-rate, the method comprising:

switching said first optical packet to a destination via a first optical communication switch that is operatively associated with said destination and said second optical packet to said destination via a second optical communication switch that is operatively associated with said destination if a magnitude of a difference between the first bit-rate and the second bit-rate exceeds a bit-rate difference threshold; and

switching said first optical packet and said second optical packet to said destination via a single optical communication switch that is operatively associated with said destination if said magnitude of a difference between the first bit-rate and the second bit-rate does not exceed the bit-rate difference threshold.

Claim 52 (Previously presented): The method according to claim 51 and wherein each of said first optical packet and said second optical packet comprises one of the following: a fixed-length optical packet; and a variable-length optical packet.